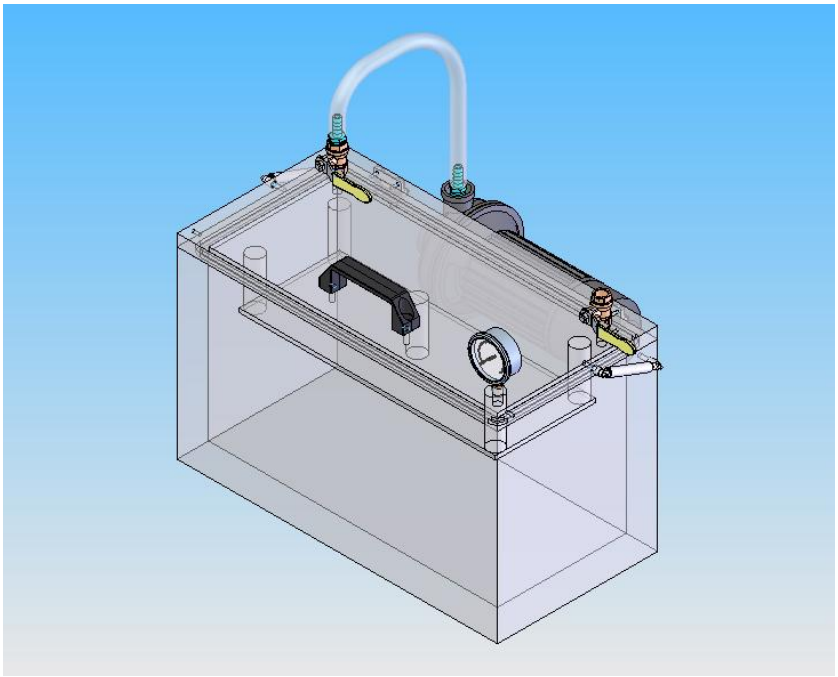
Instruction Manual
SureVac Leak Tester



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1. Introduction

The SureVac Leak Tester is a test instrument intended to be incorporated into a quality control program of packagers. The SureVac uses a vacuum method to test packages and can be used for one or all of the following purposes;

Leak detection: Test packages from your production line and determine if there are imperfections in the seal resulting in leaks as indicated by escaping air bubbles during testing.

Seal integrity: The vacuum level at which a seal fails can indicate the seal strength of the package. Specific areas of failure can indicate weak points of sealing and aid in troubleshooting packaging machinery setup.

Package Development: Vacuum method testing can be utilized for package development. New materials can be evaluated by comparing the test results.

Altitude Simulation: Test packages by simulating the varying conditions created by altitude changes during shipping. Packages may be affected when exposed to the pressure differential created by high altitude conditions, such as air freight or land transport. Vacuum method testing provides a means to simulate these conditions and determine the performance of the package.

Vacuum levels can be converted to altitude with the chart shown in Figure 1. Note that the altitude reading will be a differential from the current altitude at the testing facility.

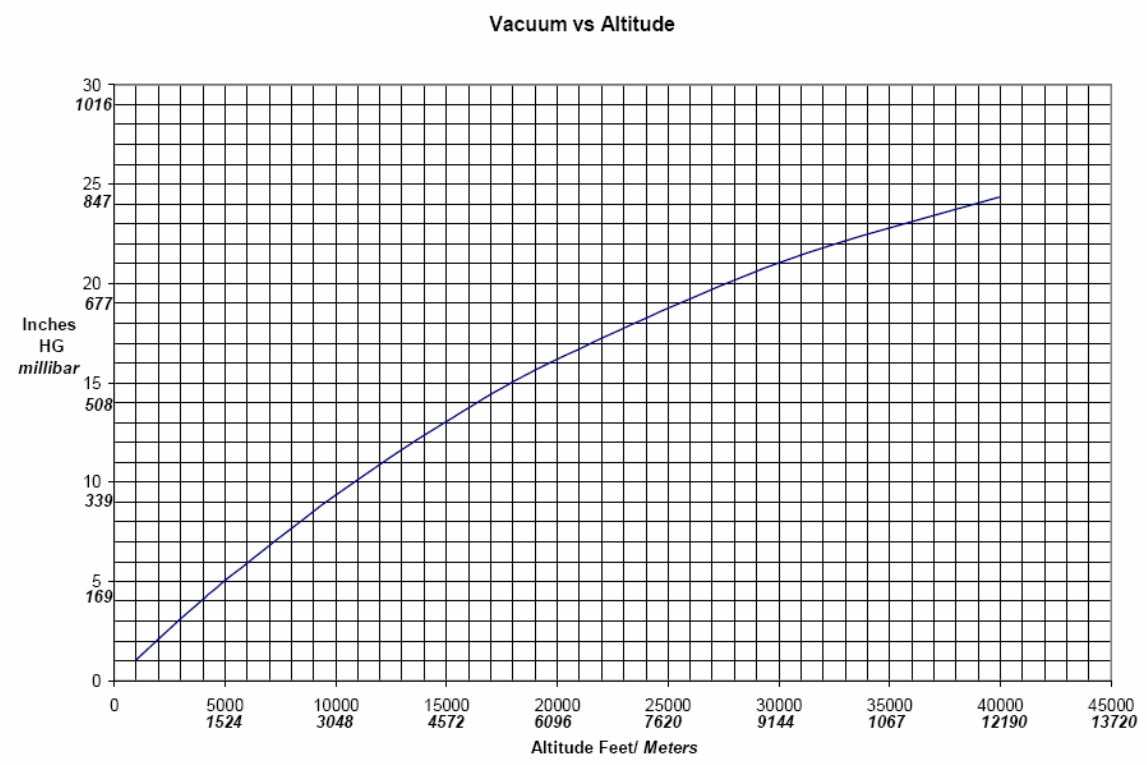

Figure 1: Vacuum vs Altitude

2. Specifications

Power supply: 115VAC, 5 Amps

Maximum Vacuum: 29.9 inches of mercury (“Hg)

Displacement: 5 CFM

Overall Dimensions: 14” H x 20” W x 10” D

Tank Internal Dimensions: 10.5” H x 18” W x 8” D

3. Installation

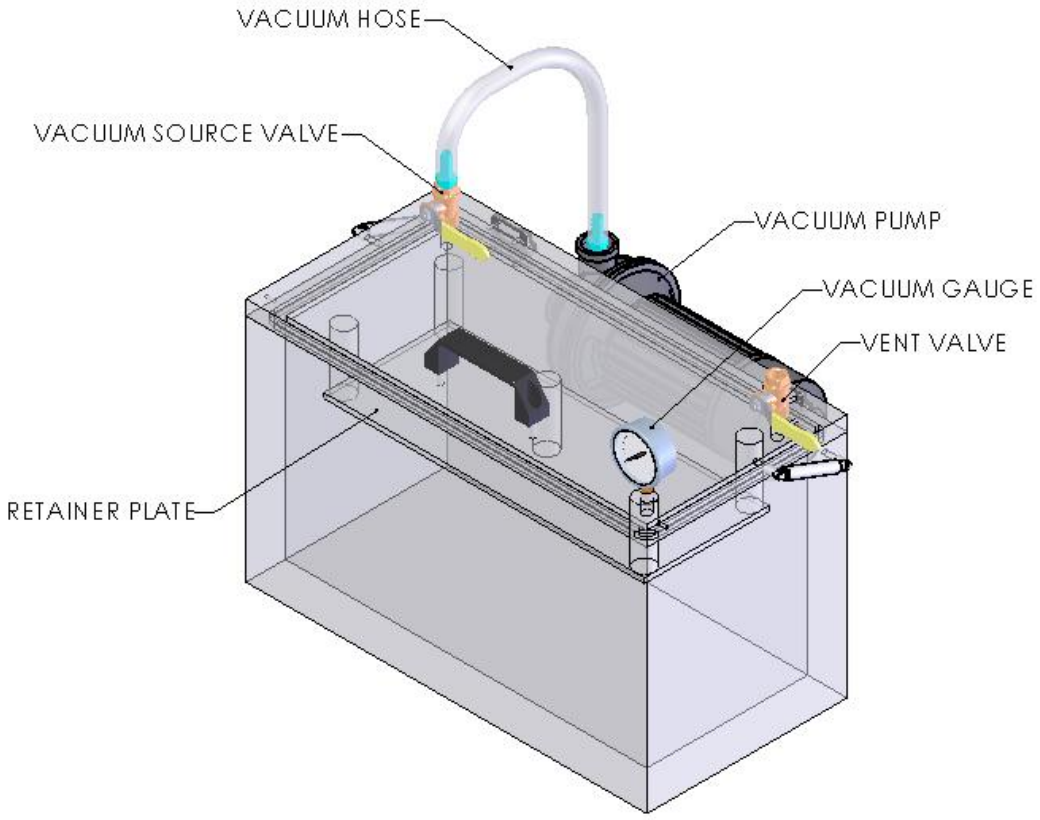

Figure 2: SureVac Features

1. Locate unit and vacuum pump on a table top.

Note that the unit is very heavy once filled with water. Verify that the table top is rated appropriately for the weight of the unit.

2. With the hose clamps provided, connect the vacuum hose from the barb fitting of the vacuum source valve to the barb fitting located on the vacuum port of the pump.
3. Fill the tank with enough water to submerge package when expanded.
   a. Note that the water level will rise as the package is expanded under vacuum.
   b. Note that the fill level will vary depending upon the size of the package being tested.
   c. Do not overfill the tank. This can allow water to enter the vacuum system and cause serious damage.
4. Plug the vacuum pump into a standard 115VAC outlet.

4. Description

The SureVac Leak Tester is an instrument that utilizes the vacuum method to verify the integrity of a package. The unit consists of a clear tank with a gasketed cover. The tank is partially filled with water and a retainer plate attached to the cover forces the package under water during testing. This allows a visual indication of escaping bubbles when a leak is present in the packages or when the seal fails.

An electric *vacuum pump* is used to generate the vacuum in the tank for package testing. The *vacuum source valve* is used to connect the tank to the vacuum pump. The *vent valve* is used to regulate the vacuum level by introducing atmospheric pressure. The vacuum level in the tank is indicated by the *vacuum gauge* mounted on top of the tank. With the vacuum source valve fully open, closing the vent valve increases the vacuum level in the tank. Opening the vent valve decreases the vacuum level in the tank.

5. Operation

The SureVac allows the user to test a package to a preset vacuum level and hold it to this level for a fixed time determined by the user. Adjust the vent valve to regulate the vacuum level applied to the tank. Use the Setup procedure to set the appropriate vacuum level before testing packages.

5.1 Procedure – Setup

1. Follow installation procedures for the package being tested.
2. Close tank cover firmly.
3. Open vacuum source valve.
4. Open vent valve.
5. Turn on power switch located on the pump.
6. Vacuum will be applied to the tank.
7. Slowly close the vent valve and note the vacuum level on the gauge.
8. Adjust the vent valve until the vacuum gauge indicates the vacuum level required for testing.
9. The unit is now ready for package testing at the preset level.
10. Note that the vent valve may need to be readjusted if test conditions change.

5.2 Procedure – Package Testing

Prior to performing this procedure, the user should perform the Installation and Setup procedures. The user should also determine the appropriate vacuum level and hold time for the test.

1. Place a package in the tank.
2. Close the cover firmly.
3. Turn on the power switch located on the vacuum pump.
4. Vacuum is applied to the tank until the preset level is reached.
5. Wait for the predetermined amount of time.
6. Turn off the power switch located on the vacuum pump.

During the test cycle, the user should observe the package for any indication of a leak or seal failure. A leak is indicated by escaping air bubbles. An immediate seal failure is indicated by a noticible “burst” of the package in the water. Note and record vacuum levels and times of events.

6. Contact Information

For technical support please use the following contact information.

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7. Vacuum Pump Operating Manual

VACUUM PUMP

CP SERIES

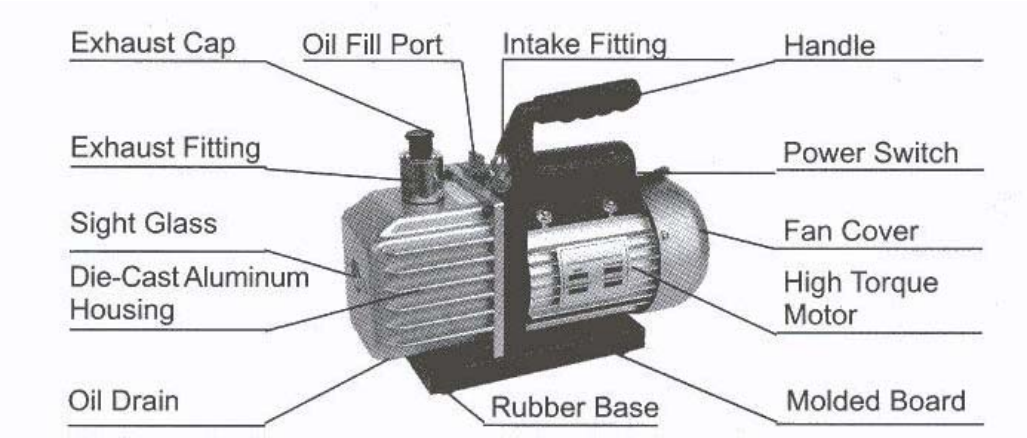
Operating Manual

Thank you for purchasing our CP series vacuum pump.

Please read this manual carefully before using the product to prevent damage and possible injury.

Catalog

PUMP COMPONENTS



II、Operating manual

(1) *Before using your vacuum pump*

The motors are designed for operating voltages plus or minus 10% of the normal rating. Single voltage motors are supplied fully connected and ready to operate.

1、The motor is rated for 115V/60 Hz 1 phase. Check to be sure the voltage and frequency at the outlet match these specifications. Check the ON-OFF switch to be sure it is in the OFF Position before you plug the pump into the outlet. Check to be sure the gas ballast valve is closed. Remove and discard the exhaust plug from the end of the pump's handle.

2、The pump is shipped without oil in it's reservoir. Before starting the pump, fill it with oil. Remove the OIL FILL cap and add oil until oil just shows in the bottom of the sight glass. The approximate oil capacity of the pump is 220v~250ml.

3、Replace the OIL FILL cap and remove the cap from one of the inlet ports. Turn the motor switch to ON. When the pump runs smoothly, replace the cap on the inlet port. This may take from two to 30 seconds depending on the ambient temperature. After the pump runs for approximately one minute, check the sight glass for proper oil level should be even with the sight glass OIL LEVEL line. Add oil if necessary.

Note: When the pump is running, the oil level should be even with the line on the sight glass. Underfilling will result in poor vacuum performance. Over filling can result in oil blowing from the exhaust port.

（**2**）***<u>To use the gas ballast feature</u>***:

Water that is carried into the pump as a vapor tends to condense into a liquid and combine with the vacuum pump oil. When moisture contaminates the pump oil, it reduces the pump's ability to reach its ultimate vacuum level.

The gas ballast valve purges a small amount of atmospheric air through the exhaust chamber. This extra volume of air mixes with the vapor from the process system to prevent condensation and to help exhaust moisture in the form of vapor from the pump.

To use the gas ballast, start the pump and open the gas ballast valve until the system has reached approximately 1000-3000microns. Close the valve to allow the pump to pull down to its ultimate vacuum level. The gas ballast valve is located beside the handle, opposite the inlet fitting.

The gas ballast valve may be opened or closed at any time during pump operation. It is fully open at two turns counterclockwise.

(3) To shut down your pump after use

To help prolong pump life and promote easy starting, follow these procedures for shutdown.

1. Chose the manifold valve between the pump and the system.
2. Remove the hose from the pump inlet.
3. Cap the inlet port to prevent any contamination or loose particles from entering the port.

III、To maintain your high vacuum pump

1. Vacuum pump oil:

The condition and type of oil used in any high vacuum pump are extremely important in determining the ultimate attainable vacuum. We recommend the use of High Vacuum pump Oil. This oil has been specifically blended to maintain maximum viscosity at normal running temperatures and to improve cold weather starts.

2. Oil Change Procedure

(1) Be sure the pump is warmed up.

(2) Remove the OIL DRAIN cap. Drain contaminated oil into a suitable container and dispose of properly. Oil can be forced from the pump by opening the inlet and partially blocking the exhaust with a cloth while the pump is running. Do not operate the pump for more than 20 seconds using this method.

(3) When the flow of oil has stopped, tilt the pump forward to drain residual oil.

(4) Replace the OIL DRAIN cap. Remove the OIL FILL cap and fill the reservoir with new vacuum pump oil until the oil just shows at the bottom of the sight glass. The approximate oil capacity of the pump is

220v~250ml.

(5) Be sure the inlet ports are capped, then turn on the pump. Allow it to run for one minute, then check the oil level. if the oil is below the sight glass OIL LEVEL line, add oil slowly(with the pump running)until the oil reaches the OIL LEVEL line. Replace the OIL FILL cap, making sure the inlet is capped and the drain cap is tight.

(6) a) If the oil is badly contaminated with sludge that forms when water is allowed to collect in the oil, you may need to remove the oil reservoir cover and wipe it out.

b) Another method of dealing with heavily contaminated oil is to force the oil from the pump reservoir. To do this, allow the pump to run until it is warmed up. While the pump is still running, remove the oil drain cap. Slightly restrict the exhaust. This will back-pressure the oil reservoir and force the oil from it, carrying more contaminants. When the oil ceases to flow, turn off the pump.

Repeat this procedure as required until the contamination is removed

Replace the OIL DRAIN cap and refill the reservoir to the proper level with fresh pump oil.

IV、Troubleshooting Guide

Your pump has been designed for dependable use and long life. If something should go wrong, however, the following guide will help you get pump back into service as quickly as possible.

If disassembly of the pump is required, please check your warranty. The warranty may be voided by misuse or customer tampering which results in the pump being inoperable.

1. Failure To Start

Check the line voltage. The pumps are designed to start at ± 10%line voltage (loaded) at 32^0F.

2. Oil leakage

① Be sure the oil is not a residual accumulation from spillage,etc.

② If leakage exists, the module cover gasket or the shaft seal may need replacing. If leakage exists in the area of the oil drain plug, you may need to reseal the plug using a commercial pipe thread sealer.

3.Failure To Pull A Good Vacuum

③ Be sure the vacuum gauge and all connections are in good condition and leak-free. You can confirm leakage by monitoring the vacuum with a thermocouple gauge while applying vacuum pump oil at connections or suspected leak points. The vacuum will improve briefly while the oil is sealing the leak.

④ Be sure the pump oil is clean. A badly contaminated pump may require several oil flushes.

⑤ Cheek to be sure the gas ballast knob is tightly closed.

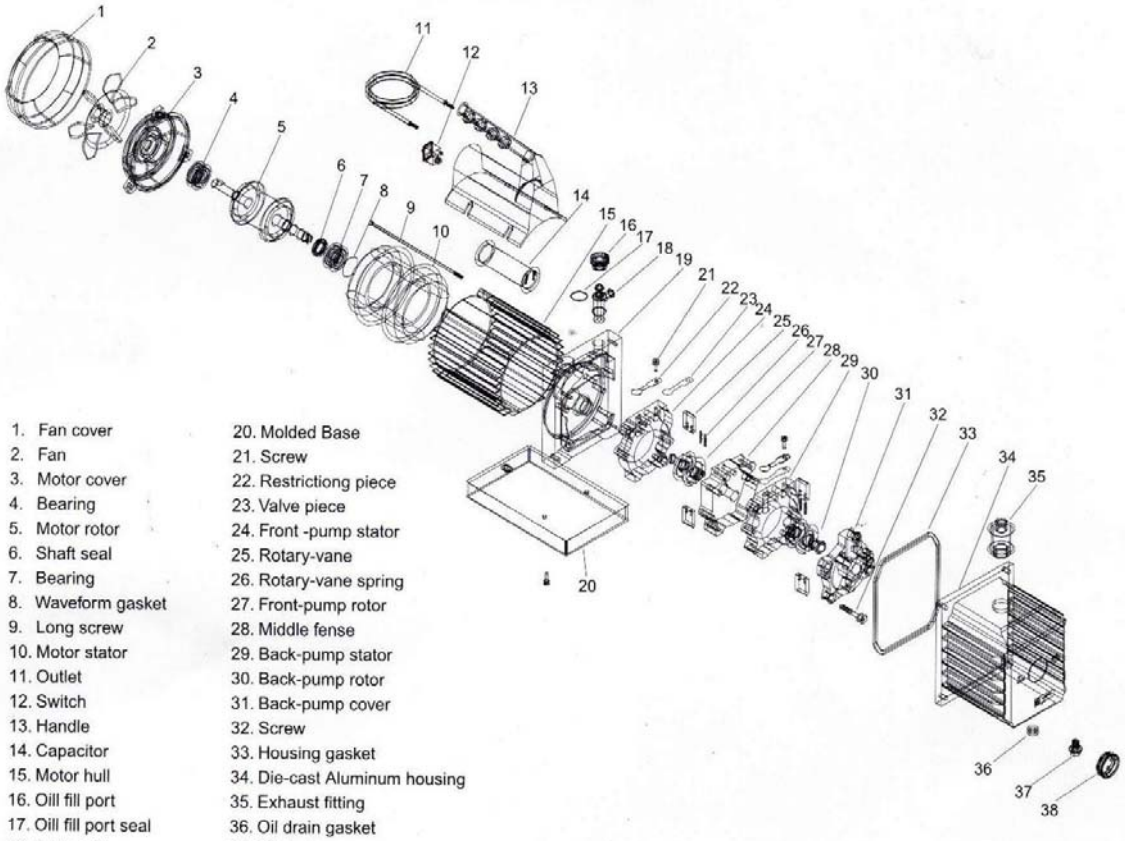
⑥ Be sure the oil is at the proper level. For maximum pump operation, the oil must be even with the OIL LEVEL line on the sight glass when the pump is running. Do not overfill-operating temperatures will cause the oil to expand so it will appear at a higher level than when the pump is not running. To check the oil level, start the pump with the inlet capped, Check the oil level in the sight glass. Add oil if necessary.

Technical Data

MODEL		CPS-5B	CPS-8B
Displacement	CFM	4.5	8
Ultimate Vacuum	Microns	250	250
Noise Level	Dba	54	56
Motor	Hp	1/3	1/2
Pump Speed	RPM	1750	1750
Oil Capacity	Ml	250	600
Inlet Connection	mm	Nozzel	
Dimensions	L x W x H	14 x 6.77 x 11.41	14 x 7 x 11.81
Pump Weight	Lbs.	23	44

Exploded Drawing

Dual Stage Vacuum Pumps



1. Fan cover
2. Fan
3. Motor cover
4. Bearing
5. Motor rotor
6. Shaft seal
7. Bearing
8. Waveform gasket
9. Long screw
10. Motor stator
11. Outlet
12. Switch
13. Handle
14. Capacitor
15. Motor hull
16. Oill fill port
17. Oill fill port seal
18. Inlet port
19. Trestle
20. Molded Base
21. Screw
22. Restrictiong piece
23. Valve piece
24. Front -pump stator
25. Rotary-vane
26. Rotary-vane spring
27. Front-pump rotor
28. Middle fense
29. Back-pump stator
30. Back-pump rotor
31. Back-pump cover
32. Screw
33. Housing gasket
34. Die-cast Aluminum housing
35. Exhaust fitting
36. Oil drain gasket
37. Oil drain cap
38. Sight glass

WARRANTY– VACUUM PRODUCTS

Subject to terms and conditions hereinafter set forth and set forth in General Terms of Sale, U.S. Vacuum Pumps of Texas, LP (the seller) warrants products of its manufacturer, when shipped, and its work (including installation & start-up) when performed, will be of good quality and will be free from defects in material and workmanship. This warranty applies only to sellers equipment, under use and service in accordance with seller's written instructions, recommendations and ratings for installation, operating, maintenance and service of products for a period if 12 months. Because of varying conditions of installation and operation, all guarantees of performance are subject to plus or minus 5% variation.

THIS WARRANTY EXTENDS ONLY TO BUYER AND/OR ORIGINAL END USER, AND IN NO EVENT SHALL THE SELLER BE LIABLE FOR PROPERTY DAMAGE SUSTAINED BY A PERSON DESIGNATED BY THE LAW OF ANY JURISDICTION AS A THIRD PARTY BENEFICIARY OF THIS WARRANTY OR ANY OTHER WARRANTY HELD TO SURVIVE SELLER'S DISCLAIMER.

All accessories furnished by seller but manufactured by others bear only that manufacturer's standard warranty.

All claims for defective products, parts, or work under this warranty must be made in writing Immediately upon discovery and, in any event within one (1) year from date of shipment of the applicable item by seller. Unless done with prior written consent of seller, any repairs, alterations or disassembly of sellers equipment shall void warranty. Installation and transportation costs are not included and defective items must be held for seller's inspection and returned to sellers Ex-works point upon request.

THERE ARE NO WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY WHICH EXTENDS BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS OF PURPOSE.

After buyers submission of a claim as provided above and its approval, seller shall at it's option either repair or replace its product, part, or work at the original Ex-works point of shipment, or refund an equitable portion of the purchase price.

The products and parts sold hereunder are not warranted for operation with erosive or corrosive materials or those which may lead to a build-up of material within the product supplied, nor those which are incompatible with the materials of construction. The buyer shall have no claim whatsoever and no product or part shall be deemed to be defective by reason of failure to resist erosive or corrosive action nor for problems resulting from build-up of material within the unit nor for problems due to incompatibility with the materials of construction.

Any improper use, operation beyond capacity, substitution of parts not approved by seller, or any alteration or repairs by others in such manner as in sellers judgment affects the product materially and adversely shall void this warranty.

No employee or representative of seller other than an officer of U.S. Vacuum Pumps, LP is Authorized to change this warranty in any way or grant any other warranty. Any such change by an officer of the company must be in writing.

In no event shall buyer be entitled to incidental or consequential damages. Any action for breach of this agreement must commence within (1) year after the cause of action has occurred.

NOTES